eration," and of which the further divisions, doubtless arranged for the sake of clearness of description, are laid down as follows:—

"The first of these must again be divided into the general state, affecting more or less the entire frame, and which is known as obesity, and the second as the same condition, confined to the heart alone."

Resorting to an unusual, but by no means original arrangement of the topics, the author treats of these two subdivisions of his subject, namely the "general state affecting more or less the entire frame" and "the same condition, confined to the heart alone," in a sort of interwoven manner, carrying them through the various headings of morbid anatomy, symptoms, diagnosis, prognosis, etiology, and treatment, now side by side, now round and round each other, now broadside on, and at all times in inextricable confusion, but never with the slightest semblance of orderly arrangement and progression. It is to this unfortunate disorder of arrangement in part, and in part, doubtless, to a still more inexact and inconsequential style, and most probably to other causes also, that is due the author's confession (p. 168) that he has "written more of what might be called *disjecta membra* than an essay," an opinion in which every reader who attempts the perusal of his book will heartily concur, at the same time thinking of the extreme "disjection" of the members caused by a sausage machine or the explosion of a naval torpedo.

All this is the more to be regretted, for the reason that the book contains much that, if read aright, is very valuable and suggestive; while many of the facts are the result of close observation and careful study by the now fading light of a long experience. It is to be regretted that the matter did not take the form of a book at an earlier date. In its present form it will escape the notice accorded to more methodical and concise monographs, either upon obesity or upon the diseases of the degenerative periods of life, including fatty degeneration of the heart from local or general causes. J. C. W.

ART. XXVIII.—*Health Reports.*

1. *Eighth Annual Report of the Secretary of the State Board of Health of the State of Michigan, for the fiscal year ending September* 30, 1880. 8vo. pp. 508. Lansing, 1881.
2. *Second Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts*, 1880. *Supplement containing the Report and Papers on Public Health.* 8vo. pp. 197. Boston, 1881.

1. THE handsome volume from the *Michigan* Health Board, is unusually rich in interesting material, even for the valuable series to which it belongs. It comprises in addition to the customary suggestive Report of the able Secretary, Dr. Henry B. Baker, of Lansing, the proceedings and addresses of the Sanitary Convention at Detroit, and the transactions of the Sanitary Convention at Grand Rapids, both of which highly successful gatherings of Sanitarians were held during the early part of the year 1880. Much useful information upon a great variety of hygienic subjects is afforded in the well-written papers of these two meetings.

Among the special reports to the Board itself, perhaps the most important are those in regard to Diphtheria, Scarlet fever, and Smallpox; in which an earnest effort appears to have been made, by combining the investigations of numerous independent observers, to discover the best methods of preventing the development and spread of these terrible maladies. With such an abundance of material as the soil of Michigan seems to produce, and such enthusiasm as her physicians manifest, we may hope for some strikingly valuable results, as these observations are prosecuted in the light furnished by Pasteur's recent wonderful researches concerning the "Germ Theory of Disease," and H. C. Wood's, in regard to the essential role of Bacteria in the production of Diphtheria.

At the Detroit Convention, instructive essays were offered on the *Contamination of Drinking Water by Filtration of Organic Matter through the Soil*, by Prof. V. C. VAUGHN, of Ann Arbor; on the *Prevention of Pulmonary Consumption*, by Prof. H. F. LYSTER, of Detroit; on *Sanitary Rewards and Punishment*, by Hon. H. W. LORD, of Detroit; on the *Use of Household Filters for Potable Waters*, by Dr. Albert H. Prescott, of Ann Arbor; on the *City of Destruction* (meaning Memphis, Tennessee), by Professor R. C. KEDZIE, M. D., President of the State Board of Health, and on *Adulteration of Food*, by Professor CARL JUNGK, of Detroit. The paper by Prof. C. J. LUNDY, of Detroit, on *Imperfect Vision Caused by Imperfect Schools*, ably urges the correct principles which should guide educators in this important matter, as briefly set forth in a review of Cohn and other authorities on school hygiene in our columns a few years since. Dr. J. S. Billings, whose immense experience so amply qualifies him to act as the fly-wheel for the hygienic machinery of America, moderating the excessive activity of youthful enthusiasts, made some amusing and pertinent remarks about the needless dread of carbonic acid, apropos of the subject of ventilation.

At the Grand Rapids Convention, after an interesting address by the Right Rev. G. D. Gillespie, President, Dr. H. B. BAKER read an excellent essay on the *Importance of General Sanitation to the Public Welfare and a Plea for Better Methods*, the whole of which is well worthy of careful study by every one interested in the care of the health. His paper was followed by one from the Rev. J. MORGAN SMITH, of Grand Rapids, on the *Duty of the Christian in Respect to the Laws of Health*, in which he takes the unassailable ground that "established sanitary knowledge involves a general Christian duty, under the command of Christian justice—to do by others as we would they should do by us; and the spirit of Christian love which worketh no ill to its neighbors." Several articles on sewerage, on school hygiene, etc., compose the rest of the report of this Convention.

The latter half of the volume is largely made up of Secretary Dr. H. B. Baker's compilations of the reports from all parts of the State, in regard to the diseases, meteorology, etc., during the year 1880. These deductions are admirably illustrated by improved charts, designed by Dr. Baker, and constructed on the plan which he has laboured so much and so worthily to popularize. There are also appended an elaborate series of observations on the *Causation of Intermittent Fever*, comprising an investigation into the meteorological and other conditions governing its production, by A. W. NICHOLSON, M.D., of Otisville, Michigan; an essay by J. H. KELLOG, M.D., of Battle Creek, on *Emanations from Decaying Wood as a Cause of Disease*, in which the author contends that wood, and especially large masses of sawdust undergoing decay, taint the atmosphere and give rise to zymotic diseases, particularly those of a malarial character; and two papers on the important, though but little understood, subject of ozone in the atmosphere. The first of these latter articles, contributed by Dr. J. Mulvany, of the English Royal Navy, comprises the results of observations made under most of the varied conditions of climate, met with between the Doggerbank on the North, and the Falkland Islands on the South. Respecting the connection between the amount of atmospheric ozone and disease, Dr. M. remarks that during the cholera epidemic of 1871 in the East, the ozonic condition presented no peculiarity either in paucity or abundance; also that he has seen consumption rare both in countries where ozone is usually abundant, and where it is commonly deficient, so that he does not believe that ozone tends either by excess or deficiency to promote this disease. The only influence which in Dr. M.'s opinion ozone has upon the human system, is that which it appears to exercise upon the procreative functions, its excess seeming to increase the chances of fecundation, in one of the instances noted in the proportion of 100 to 57, in a village of Ceylon. Dr. A. W. Nicholson, in the second of these interesting essays upon ozone, records a multitude of observations with Schonbein's test-papers, which seem to show in a general way that the air of a pine forest, contained less ozone in winter and more in summer than the open country air; that the air over charcoal pits contained decidedly less ozone than that of the open country, both by night and by day; that the impure air near decomposing animal excreta had its amount of ozone materially diminished, etc. etc. Dr. N. finally concludes that many of the results of ozonometric observations are clouded with error, and that much study is yet necessary, before the best methods for accurately estimating the quantity of ozone present at any time in the atmosphere will be determined. Dr. Nicholson disputes the opinion of Prof. Von Pettenkofer that because ozone can never (he says) be detected in our dwellings, its hygienic value does not seem to be very great; asserting that he has several times discovered ozone in houses where ventilation was prevented, and suggesting that the volume of smoke which usually, though imperceptibly, escapes from the stove or heater, contains some material, perhaps sulphurous acid, that causes a change in the iodine as rapidly as it is liberated, resulting in the formation of a colourless iodate on the test-papers, which of course renders utterly fallacious the conclusions from Schonbein's test.

The first article in the *Massachusetts* Health Report, is one on *The Pollution of Streams*, by W. E. HOYT, C. E., which consists of the results of a careful and minute examination of the condition and chief sources of danger, from a sanitary point of view, of the Deerfield and Miller rivers, in the west-central part of the State. Such investigations have of course chiefly a local importance, although their usefulness and indeed their vital necessity is so great, that the excellent example here set should be followed in every town, village, and rural district throughout the land.

A thoughtful paper on *The Separate System of Sewerage*, by Mr. E. C. CLARKE, considers the highly-praised method recently put in operation in Memphis, Tennessee. The conclusions arrived at are, that where cellars are so low that they must be drained by pumping, this system of conveying away the surface and roof water, separately from the sewage, is necessary, but that in other cases its only merit is its cheapness, and even where this is important, the separate system would only be advisable where a good fall (one in the hundred) could be obtained. When storm water flows off by surface drainage, the first cost of sewers for sewage only is about sixty per cent. of the ordinary method, but the final economy will depend on circumstances. In places where on account of the inconvenience and damage from surface drainage of rain, which increases with the growth of a town, it becomes necessary to carry off storm water underground, from closely built up and densely populated districts, and where new sewers must be constructed for the purpose, the combined system is evidently the cheapest.

Dr. J. F. A. ADAMS, of Pittsfield, Massachusetts, contributes an able essay on *Intermittent Fever in Massachusetts.* It is a curious and interesting fact that at the first settlement of the State, people built their houses on the hill tops to avoid the malaria of the valleys, but with the clearing and cultivation of the country this disease poison seemed to wholly disappear. From 1800 to 1850, ague was almost unknown, as an indigenous malady, in New England, but in the latter year it gained a foothold in Connecticut, on the shore of Long Island Sound, and about 1864 began a northward march across the western half of Connecticut and has steadily pushed forward, until in 1875 it reached the northern boundary line and stepped over into Massachusetts in 1877. In the three following years it made a further rapid advance, invading a considerable number of towns in the latter State. This paper is illustrated with maps and plans, and exhibits the results of a large amount of industrious and painstaking effort, to collect accurate information respecting the progress, apparent causes, and coincident events of the disease, so that it forms a useful contribution to the literature of malarial affections.

School-House Sanitation is the subject of a long paper by ERNEST W. BOWDITCH, C. E., of Boston, in which are reported the results of a very extended examination of school-houses in various parts of the State. Among the author's conclusions which we notice with approval are, that in school architecture it should be carefully provided for, that girls between the ages of thirteen and twenty ought not to go up and down stairs more than is absolutely necessary; that urinals create most of the smell usually attributed to water-closets, and in almost every case a smell is due largely to lack of janitor's work, so that it is a popular fallacy that such places cannot be kept clean and free from odour; that whilst light is better supplied from the sides of a school-room, the question of ventilation by the aid of the windows complicates the problem, so that it is not yet fully settled; and that where there is a public water supply, of recognized purity, it is better to depend on it, than on well-water, though if well-water is resorted to at all, the well should be kept in constant use. The method of warming school-houses, says Mr. Bowditch, through indirect steam heat, that is, where the radiators are all boxed up at or near the ceiling of the basement, and currents of outside air are passed through them, and then up into the rooms and hallways, is thought to be the best devised. Too often, however, in cold weather "cellar-air" is used, and the method then becomes highly objectionable. Next to well managed indirect steam, in point of efficiency, is furnace heat, then follows direct steam heat, and lastly heating by stoves. Open fires (of course the best of all) are unfortunately excluded on account of cost.

The volume concludes with some interesting papers on *The Health of Towns*, comprising the account of an *Epidemic in Adams*, by J. F. A. ADAMS, of Pittsfield; an article on the *Sanitary Condition of Holyoke*, by E. W. BOWDITCH, C. E.; and one on *Neglect of Vaccination*, by Z. B. ADAMS, of Framingham. J. G. R.